

Amendments to the Claims

This listing of the claims will replace all prior versions and listing of claims in the application:

Claim 1 (currently amended): An isolated polypeptide which comprises a subsequence: SRFEVW (SEQ ID NO: 22), wherein said peptide causes 50% bundled actin and inhibits actin depolymerization when polymerized in vitro with actin.

Claim 2 (amended): An isolated polypeptide in accordance with claim 1, comprising the formula: X₄-X₃-X₂-X₁-X₅-X₆, where

X₁ is -SRFEVW,

X₂ is WI,

X₃ is GIVRK,

X₄ is EN,

X₅ is PYL, and

X₆ is KK,

wherein the polypeptide comprises X₁ and at least one of X₂ or X₅, and optionally at least one of X₂, X₃, X₄, X₅ and X₆, and if any of X2 wherein when X₂, X₃, X₄, X₅ and X₆ are present, the amino acids are identical in their respective positions to those in

ENGIVRKWISRFEVWPYLLKK (SEQ ID NO: 24)

as set forth in Figure 1B.

Claim 3 (currently amended): A peptide of claim 1 which is up to 100 20 amino acids in length.

Claim 4 (currently amended): An isolated polypeptide of claim 1, wherein the peptide is at least 80% homologous with SEQ ID NOS: 2, 3 or 4a portion of native Zea mays protein sequence as set forth in GenBank Accession Number 1498382, and said homology is over the entire length of the peptide; or,

wherein said peptide causes 50% bundled actin and inhibits actin depolymerization when polymerized in vitro with actin at a molar ratio of 100 to 1; or,

wherein the peptide is at least 80% homologous with SEQ ID NOS: 2, 3 or 4a portion of native Zea mays protein sequence as set forth in GenBank Accession Number 1498382, and said homology is over the entire length of the peptide, and wherein said peptide causes actin bundling and inhibits actin depolymerization when polymerized in vitro with actin.

Claim 5 (currently amended): An isolated polypeptide having the sequence E-GI*---W-----W (SEQ ID NO: 26), where, I* means I or V, - means any amino acid, wherein said peptide causes 50% bundled actin bundling and inhibits actin depolymerization.

Claim 6 (currently amended): An isolated polypeptide in accordance with claim 5, comprising a sequence:

EH*GIV*R*-W----- V* W (SEQ ID NO: 27), where H* means H or a conservative substitution therefore, V* means V or a conservative substitution therefore, and R* means R or a conservative substitution therefore, and - means any amino acid, wherein said peptide causes actin bundling and inhibits actin depolymerization.

Claim 7 (currently amended): An isolated polypeptide in accordance with claim 6, wherein the peptide causes 50% bundled actin and inhibits actin depolymerization when polymerized in vitro with actin.

Claim 8 (currently amended): An isolated polypeptide in accordance with claim 7, wherein the peptide is polymerized with actin at a molar ratio of peptide to actin of at least 100:1.

Claim 9 (currently amended): An isolated polypeptide of claim 5, wherein the sequence ~~comprises~~ is SEQ ID NO: 12.

Claim 10 (currently amended): An isolated polypeptide comprising at least 16 contiguous amino acids in accordance with the formula:

Gly-Ile-X₁-X₂-X₃-Trp-X₄-X₅-X₆-X₇-X₈-X₉-Trp-X₁₀-X₁₁-X₁₂

or a pharmaceutically acceptable salt thereof, wherein

X₁ is Ile, Val, or Leu;

X₂ is Arg, Lys, Asn, or Thr;

X₃ is Arg, Lys, Asn, or Asp;

X₄ is Ile, Asp, Asn, or Glu;

X₅ is Ser or Asp;

X₆ is Arg, Met, or Ala;

X₇ is Phe or Glu;

X₈ is Asp, Glu, Lys, Arg, or His;

X₉ is Val or Ile;

X₁₀ is Pro or His;

X₁₁ is Tyr or His; and

X₁₂ is Leu or Thr;

wherein the ~~addition~~ administration to a patient's cell of said compound results in about 50% of bundled actin in a molar fraction of peptide to actin of at least 100 to 1.

Claim 11 (currently amended): A method for causing actin bundling and inhibition of actin depolymerization in a cell comprising the step of delivering to said cell an effective amount of an isolated peptide which comprises a subsequence: SRFEVW (SEQ ID NO: 22).

Claim 12 (currently amended): The method of claim 11, wherein the isolated peptide comprises at least 16 contiguous amino acids in accordance with the formula:

$X_4-X_3-X_2-X_1-X_5-X_6$, where

X_1 is SRFEVW,

X_2 is WI,

X_3 is GIVRK,

X_4 is EN,

X_5 is PYL, and

X_6 is KK,

wherein the isolated peptide comprises X_1 and optionally at least one of X_2 , X_3 , X_4 , X_5 and X_6 , and if any of X_2 , X_3 , X_4 , X_5 and X_6 are present, the amino acids are identical in their respective positions to those in ENGIVRKWISRFEVWPYLLKK (SEQ ID NO: 24) and said peptide inhibits actin depolymerization when polymerized in vitro with actin as set forth in Figure 1B.

Claim 13 (currently amended): A method of inhibiting growth of cells, where the method comprises administering to the cells an amount of the isolated peptide having the sequence ~~E-GI*—W—W~~ of SEQ ID NO:26, where, I* means I or V, — means any amino acid, wherein said peptide causes actin bundling and inhibits actin depolymerization.

Claim 14 (currently amended): The method of claim 13, wherein said isolated peptide ~~comprising~~_{comprises} a sequence:

EH*GIV*R*-W----- V* W (SEQ ID NO:27), where H* means H or a conservative substitution therefore, V* means V or a conservative substitution therefore, and R* means R or a conservative substitution therefore, and - means any amino acid, wherein said peptide causes actin bundling and inhibits actin depolymerization.

Claim 15 (currently amended): The method of claim 13, wherein said isolated peptide is SEQ ID NO: 10 or SEQ ID NO: 12.

Claim 16 (currently amended): The method of claim 13, wherein the administration of said isolated peptide results in about 50% of bundled actin in a molar fraction of peptide to actin of at least 100 to 1.

Claim 17 (previously presented): A polynucleotide sequence encoding a peptide of claim 5.

Claim 18 (previously presented): A vector containing the polynucleotide of claim 17.

Claim 19 (previously presented): A cell containing the vector of claim 18.